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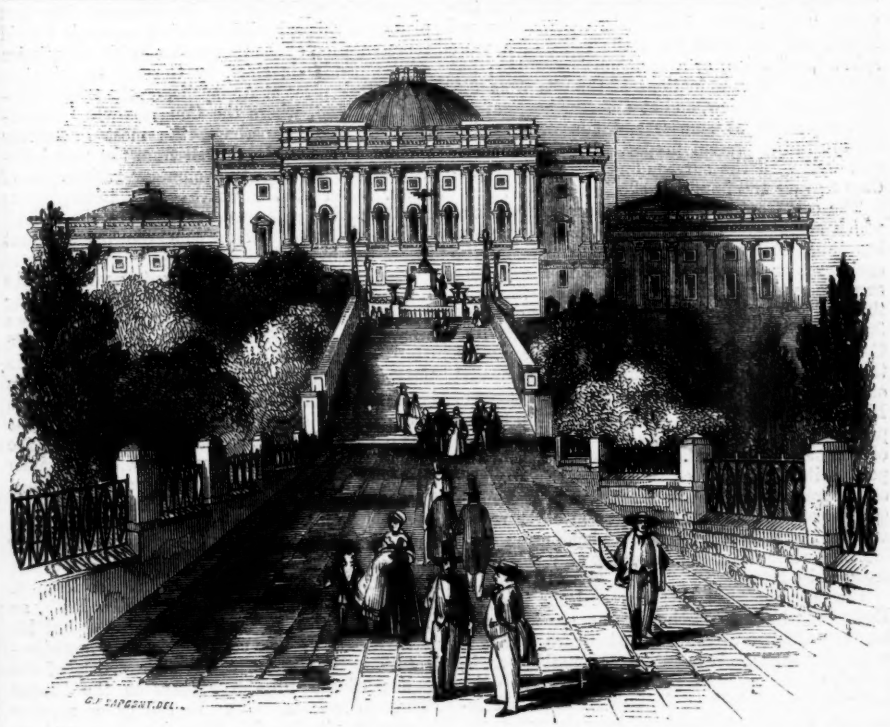

THE CAPITOL, AT WASHINGTON.

THE partial destruction of the Capitol of the United States by the late calamitous fire, has transitorily invested that magnificent edifice with an unwonted and adventitious interest. A brief sketch of its history, its architectural character, and artistic adornments, may accordingly prove acceptable to our readers. The Capitol has always been regarded as the ornament and glory of the fine city of Washington, and was expressly erected to contain the halls of legislature for the general Congress of the States. The first stone was laid in 1793, by the warrior and statesman whose name was chosen to designate the federal city; but it was not finished until some time after the cessation of hostilities in 1815, previously to which, the wings only were built of substantial materials, the intermediate space, now occupied by the Rotunda, being temporarily constructed of wood. This portion was consumed in the general conflagration of public buildings that ensued on the entrance of the British into the city on the evening of the 24th of August, 1814. The situation of the Capitol is admirably chosen, being on the summit of a rising ground which overlooks the city to the west

and north-west. The building is so placed as to have its principal front to the east, where it is seen on the same level as the neighbouring buildings. The western front overlooks the western portion of the city below it, the slope of the declivity being ornamented with terraces, walks, and shrubbery. The area of the public grounds thus laid out and inclosed is about thirty acres.

The entire frontage of the Capitol measures 352 feet from east to west, with a depth of 269 feet, including the projections for porticoes and steps on the two façades. The height of the two wings, to the balustrades of their respective dome-lights, is 70 feet; while the height of the centre to the summit of the great dome is 145 feet. The dimensions are, therefore, on a grand scale, and the effect of the whole is harmonious and imposing. "At the first view," observes an intelligent traveller, "the central dome looks too massive and heavy, and seems to want the relief of a more spiral termination, or a surmounting statue; but more frequent examinations of the pile from different points of view, and at different hours of the day, especially at sunrise and sunset, reconciles the eye to the present proportions, which harmonize well with the surrounding objects, and produce a grave and imposing effect as a whole."

The east front of the edifice, a representation of which accompanies this description, is chaste and beautiful. After passing over a lawn, within the enclosure, on each side of which is a sweeping carriage-road, you advance up a noble flight of thirty-six steps, extending over a breadth of about forty feet. The portico is formed of twenty-four Corinthian columns, of imposing dimensions. In the pediment is a fine sculptured group, composed of the Genius of America supported by figures of Hope and Justice, and surrounded with appropriate emblems, of which the national eagle is one of the most prominent. On the platform of the portico itself are two colossal statues in marble; one representing War, in the figure of a Roman general armed for conflict; and the other representing Peace, in a female figure holding an olive branch; while above is a bas-relief of Washington crowned by Fame.

The entrance from this terrace leads into the Rotunda, which comprehends the spacious area between the two wings of the structure, and is of a circular shape. It is entirely of marble—as is, indeed, almost every part of the Capitol. The diameter and the height of the hall are alike ninety-six feet. The echo of footsteps along the pavement, or the voices of people conversing, almost equals that experienced in the whispering gallery of St. Paul's. The upper interior of the dome is ornamented with caissons, like the dome of the Pantheon at Rome; and the lower part of the circular wall is divided into compartments for the reception of sculpture and painting.

On the western side of the Rotunda some of the panels are filled by pictures, executed by Colonel Trumbull, an officer of the American army, and aide-de-camp to Washington during the war. Retiring from the service in disgust at the irregular promotion of some officers over his head, he cultivated his natural talent for drawing, by studying under West, and other eminent European artists. The first of these paintings represents the Declaration of Independence, as signed on the 4th July, 1766. It is very large, and contains not less than fifty portraits of the actual signers of that celebrated document, in the costume of the day. The figures of Franklin, John Hancock, Thomas Jefferson, and John Adams, are readily recognised. The second picture exhibits the surrender of the British troops under General Burgoyne, to the American revolutionists under the command of General Gates, at Saratoga, in October, 1777. The figures are in the military costume worn by the respective armies at the time; and the bodies of cavalry and infantry, the general's tent, the tender of the officer's sword, and the other incidents of the piece, are all well done. The third painting represents a similar scene of the surrender of the discomfited forces under Lord Cornwallis, at Yorktown, in Virginia. The last picture of this splendid historical group, is a vivid representation of the resignation of his commission as commander-in-chief, by General Washington, which took place at Annapolis, on the 23rd of December, 1783, where the Congress was then sitting. "This is, perhaps, the most interesting picture of the whole, as well from the moral dignity of the subject—the voluntary resignation of power when at the zenith of its triumphs—as from the admirable treatment of it by the artist." All the pictures are of the same dimensions, about fifteen feet by ten.

There are altogether four entrances into the Rotunda; two of them, as we have shown, being from the eastern and western porticoes, and two others from the Senate House in the northern wing, and from the House of Representatives in the southern wing. Over each of these entrances is a large historical piece of sculpture, designed to commemorate some leading national event. The first device, by Capellano, an Italian pupil of the great Canova, exhibits the narrow escape of Captain Smith, the first successful adventurer in Virginia, from the uplifted war-club of King Powhatan, through the intercession of Pocahontas, his daughter. The figure of Pocahontas, in the attitude of supplicating the mercy of her sire on behalf of the intended victim, is wrought with admirable effect. She was subsequently married to Mr. Rolfe, an English gentleman, with whom she visited his native country. The second piece is a fine representation, by Causici, a Veronese artist, of the landing of the Pilgrim Fathers on the famous Plymouth rock, in 1620. In this group are four figures—a pilgrim, his wife, his child, and an Indian, who, as the pilgrim steps from the boat to the rock, receives him kneeling, and presents to him an ear of corn. The third subject is the treaty of William Penn with the Indians of Pennsylvania. In this group are three figures, under the spreading elm tree where this treaty was made. Penn is represented in the formal Quaker garb of that day, with a curled wig and cocked hat, a costume most unfavourable to the display of grace in the sculptor: and the two others are Indians; one, a chief, holding the calumet or pipe of peace, and the other a younger Indian of the same tribe, who was a party to the treaty. This was executed by a French artist, Mons. Gevelot. The last subject, in point of date, is a conflict of David Boon, the celebrated

American backwoodsman, one of the early pioneers or settlers in the western wilds, who made a most intrepid defence, single-handed, against the attack of some hostile Indians, in 1773. The space being extremely contracted for this representation, the figure of the dead Indian is placed coiled up and contracted beneath the feet of the two other figures of the group, who are standing on it, while engaged in mortal combat: thus, as an Indian, after gazing upon the picture, shrewdly and truly said, "giving a perfect picture of the actual condition of his whole race, by scarcely leaving him soil enough to die upon."*

In the north wing of the building is the senate chamber. It is semi-circular in shape, its extreme breadth being 75 feet. The President occupies an elevated chair in the centre of the radius line, with his face towards the semicircle, and just beneath him sit the Secretary of the Senate and his assistants. Beyond these, the fifty-two senators are arranged, in semicircular rows, each receding row of benches rising a little above the preceding one. Each senator has a commodious arm-chair for his seat, while before him is a mahogany desk, furnished with a deep receptacle for printed papers below, and all the requisite conveniences for writing above. Behind the outer row of seats, separated from it by a screen, is a commodious range of sofas along the wall, for the accommodation of visitors and members of other branches of the government. On the opposite side, behind the President's chair, and separated from the body of the senate house by a colonnade of beautiful Ionic pillars of Potomac marble, is an open corridor, likewise accessible to visitors, and capable of accommodating between fifty and one hundred persons. There are two galleries also capable of affording room for several hundred strangers. Over the chair of the President is a fine portrait of General Washington. The semi-domed roof is richly ornamented, while from the centre is suspended a large ormolu chandelier; "the whole producing a chastened richness of effect well comporting with the dignity of a senate chamber."

The Hall of Representatives, in the opposite wing of the Capitol, differs but little, except in its larger dimensions, from the former. It is surrounded by 24 columns of marble, crowned with Corinthian capitals. The galleries are capable of containing 600 persons, to which strangers are admitted without the least restraint. The sittings of the members usually take place by day. The usual hours are from twelve till four; it being on particular occasions only that their sittings are extended to five or six o'clock: an arrangement highly favourable to order, decorum, and the efficient discharge of public business.

The library of the Capitol, which is now totally destroyed, was a fine apartment, and well furnished not only with public documents, but also with works of general literature, towards which a grant of 5000 dollars has long been annually voted. The first Congressional library was destroyed by the British during the war. On the occurrence of this calamity, the ex-president, Thomas Jefferson, offered his valuable private collection of books to Congress, as the nucleus of a new library. The munificent offer was accepted, and a steady and rapid augmentation of books had continued to take place up to the period of the recent conflagration, by which upwards of 35,000 volumes have been destroyed, together with numerous manuscripts, paintings, and maps. The original Declaration of Independence has been preserved. Fortunately, the flames were prevented from reaching the other parts of the edifice.

* Buckingham's America, vol. i., p. 299.

THE PHILOSOPHY OF A LUMP OF ICE.

Draw closer round the blazing fire, and with thankful heart acknowledge the kindness of God in all the comforts of home. It is a frosty night; the roads are hard, and give a sharp clear sound under the firm step of the traveller; the garden paths and the well-paved yard are glazed with ice; the water in the butt and cistern is freezing; and, for the safety of the in-comers and passers-by, the causeway must be strewed with ashes. How still is the night! How unusually distinct are all the familiar out-door sounds. The cart, as it rolls by, makes every revolution of the wheels distinctly heard, and the timid tread of the horses, as they slowly drag their burdens over the slippery surface of the rough stones, excites our pity. The pit-pat step of the dog, trotting homeward with a short discontented bark; the lingering, heavy sound of the hard hands of the sturdy labourer, beating his well-covered sides; the shrill whistle of the boy who, blowing the tips of his half-frozen fingers, cannot resist the temptation of giving an additional and more artistic puff to the two which by rude habit linger behind their fellows; these and many more familiar sounds are almost as distinctly heard as if there were no brick wall between the warm fire of the snug apartment, and the clear, cold, frosty atmosphere out of doors.

To some, this ice-bearing night brings thoughts of future pleasure; to others, it is a sad and painful present. The light-hearted boy, as he hastens to hide himself under the warm blankets, chuckles with the thought of a long slide down the playground in the morning. The youth, whose rising dignity is on the opportunity to be mounted on a pair of skates, peeps timidly from behind the half-opened door to see whether the ice is thickening, as if afraid to-night of the freezing blast he is so anxiously desiring manfully to face on the coming day. The village smithy, full of light and noise, gives an unusual importance and activity to the strong-armed plutonian who owns the dusky cell; and many a retail trader is calculating in his little back-parlour how he can make the setting in of the frost turn to his profit. There is some touch of novelty in the first earnest frost of a new winter, which seems to put people in good humour, not unmixed with a little self-congratulation, that they are prepared with fuel and warm clothing, and can bid defiance to all its severity, whether it come with a hard-visaged frown, which seems to say, "I have come to stop and try you," or whether it blusters about in its snowy coat and north-wester.

Draw closer round the bright fire, then, while we deliver a little lecture upon ice. It meets our eye everywhere out of doors. The icicle hangs on the eaves, and the streams are covered with ice.

The drops that this morning ran sparkling with life over the gravelly beds of mountain streams, are now congealed into a hard transparent mass at the surface of the gentle river; the vapour that floated unseen and unfelt hangs in white pencils from every projecting ledge.

Long before Dr. Black made his interesting and important discovery of the principle of *latent*, that is, hidden heat, it was well known that heat was necessary to produce water from ice, and steam from water; but why the heat was necessary, and what amount was required, no one so much as conjectured. When on a cold day water was turned into a hard, solid, crystalline mass, the effect was said to be produced by cold; when water was boiled in a tea-kettle, or vapour was seen to rise from low grounds after an intensely hot day, the effect was attributed to heat. This was all people thought about the matter, and their conjecture scarcely deserved to be called knowledge. Now, however, we have grown a little wiser.

Here, for example, is a small lump of ice: let us break it into fragments, or pound it in a mortar or on a stone, using any hard substance that comes conveniently to hand as a pestle. Place it, in an ale or any other tall glass on the table, before the fire. Remove the little thermometer from its case on the mantel-piece, and plunge the bulb into the midst of the ice. The fluid column begins immediately to contract, and falls till it reaches a line marked, on one side of the scale, 32°, and on the other, freezing point. This, then, is the temperature of ice. The effect of the warm atmosphere and the radiation of heat from the fire is soon evident. A part of the ice is melted, and what remains floats on the water produced by the melting. Examine again the thermometer. Has it risen? Is the water hotter than the ice? No, the mercury is at the same height, still at the freezing point; but what remained of the ice is now just disappearing. It is gone, and *now* the thermometer is rising. Higher and higher it goes; it is still ascending. How strange that it should move so fast now the ice is melted, and yet have remained immovable while but a particle remained.

Let us think for a moment upon these curious results, and attempt to discover their cause; and if the reasoning be just, you may trust the results to which it will bring us. Heat, you see, must have been received by the ice, for from the moment it was placed in the glass on the table, it began to melt, and though the thermometer gave no evidence of its presence, yet it evidently was communicated. Well, then, if the ice did receive heat without exhibiting any increase of temperature, what became of it? This is the main question, and there seems to be but one satisfactory answer. It must have been *hidden in the ice*. This supposition is amply proved by experiment. Ice cannot take a liquid form without the supply of an amount of heat, equal to that which the water had when it was first converted into ice. To make ice melt, or to change water into vapour, heat must be obtained, and as that heat is so received as to give no evidence of its presence in the expansion of the fluid column of a thermometer, or to our sensibility through the touch, it is said to be latent. This explanation accounts for a very curious fact. Our readers may have noticed that the atmosphere sometimes becomes sensibly warmer after a rapid frost; a circumstance which is evidently occasioned by the communication to it of the latent heat given up by the water in the act of freezing; and so the weather may grow colder during a quick thaw, because, in resuming its liquid state, the water collects again, from the surrounding air and all the objects in its vicinity, the heat it had previously lent them.

Of the various phenomena which accompany winter, the production of ice is one of the most constant. Freezing, to be sure, is occasionally observed in temperate climes at other seasons of the year, but it is then examined rather as an accident than as a natural consequence and anticipated event; curiosity is always excited by its appearance, and men immediately busy themselves in an attempt to find a cause. In winter ice is expected, as a matter of course, and is received as an acquaintance—though to some an unwelcome one—and the announcement of its arrival is heard as a warning to supply the coal-cellars, and to prepare our great-coats and wrappers.

There is a winter season in all countries of the world, but the amount of change in the temperature is in no two latitudes the same. There are some places in which the heat is never so low as to freeze water; and there are others, again, where the ice is never again melted. In some countries the difference of temperature between winter and summer is not more than two or three degrees; in others it amounts to more than fifty. At Cumana, for instance, in South America, near the equator, the temperature of summer is eighty-two degrees, and of winter eighty; being only two degrees between both seasons. At Quebec, on the contrary, where the snow remains permanently on the ground for five months, the thermometer rises to sixty-eight in summer, and falls to fourteen in winter, eighteen degrees below freezing point.

If local circumstances do not interfere, the difference of temperature between the summer and winter months, and consequently the existence and continuance of frost, increases as we journey from the equator to the poles. But this rule is not without exceptions, produced by various causes. The climate of a country, for example, is modified by its nearness to, or distance from, the ocean. A place situated on the margin of the sea is cooler in summer, and warmer in winter, than an inland locality in the same district. But, again, this diminution of the severities of winter in consequence of proximity to the ocean, is frequently counteracted by exposure to certain prevalent cold winds, which are in all cases powerful agents in regulating the temperature of the seasons. To these causes must be added, also, the influence of oceanic currents, of which there is an example in the increase of temperature upon the western shores of Europe by the Gulf Stream. Nor must the influence of soil, cultivation, and drainage, be neglected, the effects of which are so visible in every part of our country, that it is scarcely necessary to compare the state of Europe when covered with forest and bog in the time of Cæsar, with what it is now, with its pastures and corn-fields.

After making allowance, however, for the influence of other agencies, the two causes which most influence temperature are latitude and elevation—

the situation of a place in reference to the equator and to the level of the ocean. There are two reasons why the temperature of a place diminishes with its elevation above the ocean. The atmosphere around us, strange as it may appear to an unscientific reader, receives no heat directly from the sun; it transmits all its rays, but retains none. It is like the stony mountain channel which holds the fertilizing stream as it glides or tumbles into the plains, but neither retarding it in its course, nor deriving any benefit from its passage. The earth, however, has a certain proportion of heat, which it communicates to the atmosphere. The temperature of the atmosphere, in fact, is entirely regulated by the heat which it thus receives from the earth, so that the greater the atmosphere's distance from the ordinary surface of the earth, the colder it becomes. There must, consequently, be some point of elevation in the atmosphere at which its temperature never exceeds that of freezing water, and this point forms the line of constant freezing, or perpetual ice.

Another reason for the diminution of the temperature of the atmosphere with its increased elevation above the surface of the earth, or rather, above the level of the ocean, is the fact, that its density or thickness diminishes as it becomes elevated; and in proportion as it loses this dense property, it loses also its capacity for retaining heat. This is a fact of great importance to the right understanding of atmospheric phenomena; but with its assistance many otherwise inexplicable phenomena are clearly explained. The height above the surface of the earth at which there is constant ice, or in other words, the line of freezing, depends upon the latitude of the place. In general, however, this elevation is constantly on the decrease from the equator towards the poles. At the equator there is a perpetual temperature at which ice cannot melt, at a height of about sixteen thousand feet above the ocean; in eighty degrees of latitude this high line falls to the level of the sea, and ice is constantly present on its surface. So many local causes, however, interfere with this general law, that it is scarcely possible to find any two places under the same latitude where perpetual frost commences at precisely the same elevation; and even on the same mountain the line may be higher on one side than on another. If this be true, it must be quite possible to take a journey, the extent of which is but a few miles, in which the traveller shall pass from the climate of the tropics into the region of perpetual ice, and view successively the vegetation of all climes; the wide-spreading palms and impenetrable forests of the tropics; the deciduous or leaf-dropping trees and verdant meadows of the temperate zone; the pines and firs of the north; and the mosses and lichens of the frigid realms, which form, as it were, a graceful border to the circle of vegetable life, before the venturesome traveller steps into the desolate, lifeless, and solitary region of perpetual frigidity.

There is no clime capable of supporting life for which God has not in his providence supplied inhabitants. In each, man finds some condition suitable for his support and the sustenance of his species; but in all, he is subject to vicissitude, trial, and suffering. In some the heat is excessive, in others the cold; in some he regrets the absence of marked inequalities of season, and in others he complains of their existence; yet in all he lives: and such is the adaptability of his nature to the physical condition of the country he inhabits, that the race is perpetuated, and many comforts and pleasures are obtained. In places which, to the uninured, seem desolate of all that is valuable in physical and social life, the native finds means of support, and with the love of God in his heart, may feel more peace and happiness than dwellers in genial climes, who have not these invaluable blessings.

THE LYONESE WEAVER.

MARIE JOSEPH JACQUARD, whose name has gained a well-earned celebrity, was born at Lyons, on the 7th of July, 1752. His father was a weaver of brocaded stuffs, and his mother wrought in the same establishment, as, what was technically called, *reader of designs*. Her business was to point out to the workman the threads which were to be used in succession for tinting the stuffs. About this period the manufacture of silk in Lyons had received great extension. Crowds of sturdy agriculturists from the fertile banks of the Rhone flocked into the city, and often died prematurely from the effects of a sedentary occupation, and the foul air of over-crowded workshops. Those who survived, usually became owners of looms; but even then their savings were often swallowed up by too bold speculations; they once more worked for others, and generally ended their days in an hospital.

At the time of Joseph Jacquard's birth, his father's circumstances were flourishing; he had purchased a loom, and when the boy grew old enough he sent him to school, instead of condemning him to the lot which usually awaited the children of weavers—an early apprenticeship to the unhealthy labours of the workshop.

The old teacher to whom Joseph was sent, could teach nothing but reading. That the boy soon acquired, and his father seeing him as learned as his tutor, desired him to select a trade. He chose that of a bookbinder, and in his master's house there lodged an old man, a land-surveyor's clerk, who, struck with the boy's intelligence, taught him in the evenings the first elements of mathematics.

The young apprentice was then about thirteen years old, and his taste for mechanics was shown by a number of curious little inventions, which he was in the habit of displaying to his old friend. One evening when he had finished constructing a coach out of a few old cards, the clerk said to him:

"Joseph, is there any other trade which would suit you better than that of a bookbinder?"

"Ah!" replied the boy, "there is indeed!"

"What is it?"

Joseph rubbed his forehead in perplexity, and after a few moments, said:—

"The misfortune is, that my father is not rich: if he were, I could get tools and instruments of all kinds, and if I had a forge and workmen at command, I am certain I could invent some new machinery."

"Have you the idea of any new invention in your head?"

"Yes," replied Jacquard. "The other day, happening to enter the cutler's shop opposite, I saw an hour occupied in passing the blade of a knife through the hands of three workman. One sharpened the edge, another polished the blade, and a third pierced holes in the handle. After considering, I thought of a piece of mechanism which would do it all in five minutes. If I could choose, I think I should like to be a cutler."

It was late that night, when the elder Jacquard, uneasy at his son's prolonged absence, came to seek him in the clerk's apartment. He found him occupied in explaining the details of the machine to his old friend, who was listening with breathless attention, and who placed his finger on his own lips to enjoin silence on the visitor. Joseph continued his demonstration without perceiving his father's entrance, and soon the latter shared the clerk's admiration of the boy's earnest and unchildlike eloquence. It was not difficult to gain his consent to Joseph's becoming a cutler. It happened unfortunately, however, that his new master was both dull and ignorant, and mocked at the idea of any new invention. Jacquard soon grew tired of his position, and prevailed on his father to place him with a founder of printing types. He soon displayed his rich inventive powers in his new occupation; but the death of his father, who left him a legacy of two working-looms, caused him once more to change his occupation. At the age of nineteen he found himself at liberty to spend his time in inventing various improvements in the art of weaving. But, unhappily, money began to fail; all his father's prudent savings were spent, and Jacquard, who, like too many geniuses, was thoughtless and improvident, began seriously to think he had been robbed. He sold his looms to pay his debts; and then, when he had nothing left, he committed what, under the generality of circumstances, would have proved a most disastrous step, by entering on marriage with a girl as needy as himself. Notwithstanding its unpromising auspices, however, this marriage proved a happy one. The young wife was affectionate, self-denying, and so good a manager of their slender income, that Jacquard, who was constantly absorbed in his mechanical reveries, allowed himself to be fed like a child, without thinking or inquiring whence the means of support were derived. But at length a day came when no food was to be had. Jacquard during the previous week had earned nothing; all his wife's little ornaments were sold, and even the house in which they lived was now the property of another. Madame Jacquard had just been confined with her first child, and obtained from the purchaser of the house permission to remain in it for a short time, until her health should be re-established. Stern necessity aroused Jacquard from his dreams: with great difficulty he obtained employment as a lime-burner, while his wife worked as a straw-bonnet maker. During several succeeding years we possess few authentic details of the life of Jacquard. He was at Lyons during the stormy period of the revolution, suffering from many perils and much poverty; the latter evil effectually preventing him from executing a plan for an improved loom, which had long been revolving in his brain. In the year 1800, he obtained employment from an intelligent silk-manufacturer, who kindly advanced money for his support during the time that the construction of the machine would require. In the commencement of the next year he had the happiness of exhibiting his loom at the "Exhibition of National Industry," and obtained a bronze medal for what was, after all, but a rudimental outline of what he subsequently accomplished. Shortly afterwards, while patiently labouring in his obscure garret, he was honoured by a visit from the minister Carnot, who, having seen the new loom, came thus in person to express his satisfaction to its maker. The object of the invention, and which is now amply accomplished by the perfected Jacquard loom, was to substitute machinery for a number of human workers, condemned by the very nature of their unhealthy employment to premature decline and death.

In 1802, Jacquard went to Paris, led thither by the following circumstance. The Society of Arts in London, and also that in Paris, had offered a prize for the invention of any process by which the making of fishing-nets and quarter-netting for ships might be facilitated. During a quiet country walk one evening, Jacquard invented the theory of the desired improvement.

"Do you know," said he, next morning, to his employer, "that I have thought of a method of making nets, without the use of a shuttle, by means of a machine, which will cost but a hundred crowns?"

The manufacturer, who had become his friend, desired him to explain the process; and its simplicity was so great, that Jacquard spoke of it as a thing which any one might discover.

"Well, Jacquard," said his master, "you must try for the prize."

"Oh!" replied Joseph, "it would not be worth while for such a trifle. I have much more important inventions in my head."

His employer, however, insisted, and advanced the necessary money; and in three weeks the machine was completed.

In a few days Jacquard received a summons from the Prefect of Lyons. He obeyed the call, and was introduced into a private room.

"Ah! Jacquard," said the Prefect, "I hear that you have invented an ingenious method of weaving nets without using a shuttle; and as it is my duty to make known to the government everything that may concern the promotion of national industry, I request that you will write for me a description of the process, and I will immediately forward it to Paris."

"But, Monsieur," replied Joseph, "I never composed a written sentence in my life, and how, then, could I write what you require? But if you like to send for the machine (two men will easily bring it), I can explain its construction by word of mouth; and then you can, if you wish, *write* a description of it."

"An excellent plan," said the Prefect. And in less than two hours the machine, in all its effective simplicity, was in full operation beneath the Prefect's eyes: he himself had the pleasure of weaving several rows of meshes. An accurate description was sent to Paris, and in a fortnight Jacquard received a peremptory order from the agent of the secret police to follow him to the great city. No explanation of the motive of this enforced journey

was given by his guide; and he passed the first night after his arrival in the dwelling of the minister of police. Next morning this official conducted him to the Tuilleries, when they were immediately introduced into a room occupied by a gentleman seated at a table.

"Is your name Jacquard?" said this latter.

"Yes, Monsieur."

"Do you know me?'

"No, Monsieur, I don't remember"——

"I am the Emperor—sit down."

At these unexpected words, Jacquard stood speechless.

"Come, my friend, be seated," said the Emperor, with a benevolent smile; and the artisan fell, rather than placed himself, on a chair. The minister of police remained standing.

Then commenced a long and earnest conversation between the poor workman and the master of France. It was a part, and not the least successful one, of Napoleon's policy, to speak with frank and cordial familiarity to his humblest subjects. Jacquard soon felt completely at his ease; he explained his ideas of mechanical invention as freely as if he had been conversing with an equal, and even smiled and shook his head when the Emperor, in his eagerness to jump to a conclusion, hazarded some erroneous conjecture.

The interview lasted two hours, during which but little was said of the netting machine, and a great deal as to the projected improvements in silk weaving. At its close, the Emperor took Jacquard's hand, pressed it cordially, and said:—

"Your ideas are excellent, and must be applied. remain at Paris, and study machinery. You shall have rooms at your disposal at the Institute of Arts and Manufactures, and will be in constant communication with men who can teach you whatever you require to learn. But remember that your genius ought to invent things far beyond its present scope. When I had you conveyed hither as a prisoner, all I knew of you was, that you had invented a machine for which England had offered a reward. I did not wish that *she* should profit in the smallest degree by the genius of our French workmen. Now I know you, Jacquard; you will devote your labours to the service of France, and I shall not forget you."

Once installed at the Conservatory of Arts and Manufactures, our hero concentrated all his powers in seeking to accomplish his great aim—that of substituting mechanical agency for the labours of a multitude of workers, condemned by the nature of their occupation to physical sufferings and moral degradation.

Amongst the machines preserved at the Conservatory, was an imperfect model designed by Vaucanson. It consisted of a cylinder perforated with holes, which allowed to pass, or impeded, according to the holes which it presented, needles causing to deviate the threads of the warp, and thus formed a pattern in the weft. The sight of this machine, unfinished as it was, and hitherto regarded as merely an object of curiosity, suggested a new idea to Jacquard. To Vaucanson's cylinder, he added a pasteboard spiral pierced with holes, through which the threads of the warp passed to the weaver; thus dispensing with the intervention of the thread-drawer. He also added an ingenious contrivance for showing the weaver the colour of the shuttle which he was to throw; thus rendering superfluous the employment of a *reader of patterns*.

When Jacquard had finished his loom, the first use he made of it was to weave several ells of rich tissue as a present to the Empress Josephine. It is said that Napoleon came in person to the Conservatory, to express his lively satisfaction: it is certain, at all events, that he showed it, by employing expert workmen to construct on Jacquard's model several beautiful looms, which he presented to their inventor. Jacquard returned to Lyons, and improvements were speedily adopted there by the principal manufacturers. There speedily, however, broke out a tumult amongst the workmen. They complained that the use of machinery deprived them and their families of bread; totally forgetting that the vast impetus given thereby to their trade, must cause the employment of a double number of operatives. But mobs never listen to reason: and poor Jacquard, so far from meeting honour in his own city, was doomed to see his looms torn to pieces, "the iron sold for old iron, and the timber for fire-wood." So he said himself when speaking, at the age of eighty, before the Chamber of Commerce; and he uttered the words in a voice of the deepest emotion. Nor was this the worst: three times he narrowly escaped with his life; on one occasion being menaced with a watery grave in the Rhone, and being saved almost by a miracle. Truth and right, however, generally prevail. The increase of the silk-trade in Lyons, the opulence of its conductors, and the number of persons employed, became shortly so great, that in a very few years the people who had vowed vengeance against Jacquard, carried him in triumph through the streets, while celebrating the anniversary of his birth.

It was not long before England, and then the whole world, adopted the Jacquard loom. We must not forget to make honourable mention of two master weavers, Depouilly and Schirmer, and the mechanist Breton. They encouraged and supported Jacquard during the sharp struggle in which he had been wellnigh overcome. "These men," said Jacquard, "have become rich through my invention, and I am glad of it. I remain poor, but I do not complain: it suffices me that I have been useful to my countrymen."

A patent was taken out for the loom, and Jacquard was with difficulty persuaded to make use of it; neither could he ever be prevailed on to prosecute offenders. When the municipal council of Lyons proposed to him to devote his entire time and labour to the service of their town, and to bestow on it all the future improvements which his genius might devise, he hesitated not to comply, and accepted in return only a very moderate salary of his own naming. These few facts strongly attest his disinterestedness.

At the age of seventy Jacquard retired to the village of Oullins, his father's native place. There, in 1820, he received the decoration of the Legion of Honour; and lived happy and respected until the year 1834, when he expired at the age of eighty-two. A fine statue of Jacquard has since been erected by public subscription at Oullins.

LIONS, TIGERS, AND HYENAS OF THE FEATHERED TRIBE.

We will not trouble the reader with a scientific description of the birds of prey: suffice it for our present purpose to state that they may be generally recognised by their hooked beaks and stout feet, armed with strong hooked claws. They are among the feathered race what the *carnivora*, or flesh-devourers, are among beasts; but their destructive propensities, however calculated at first to shock our conceptions of order and harmony, are appointed with regard to the due adjustment of the balance of creation.

THE CONDOR.

Upon some isolated pinnacle, some horrid crag, of the Andes, we behold the nest of the Condor—that giant among vultures. There she rears her brood, and from thence she surveys the plain far beneath in quest of food. Like the rest of the vulture family, the condor prefers carrion, with which it gorges itself to repletion, so that it becomes incapable of flight, and in this state is easily captured with the lasso of the expert Indian. After some of the eastern battles, voracious animals will crowd from all quarters to the field, of which jackals, hyenas, and vultures are the chief; while vast multitudes will be seen in the air flocking to the general carnage. "In some parts of the torrid zone, the carrion vultures haunt the towns in immense multitudes. In Carthagena, they may be seen sitting on the roofs of the houses, or even stalking slowly along the streets. They are here of infinite service to the inhabitants; devouring that filth which would otherwise, by its intolerable stench, render the climate still more unwholesome than it is."

THE LAMMER-GEYER, OR BEARDED VULTURE.

The lammer-geyer, or the bearded or lamb Vulture, is described by Cuvier as the largest bird of prey on the eastern continent. It attacks chamois, goats, sheep, marmots, etc., and even man on the edge of a precipice. Sailing on the air, above the summits of the stupendous Alps, it watches till its unwary victim approaches the edge of a precipice or traverses the pass of a narrow ledge, and then, sudden and impetuous as the avalanche of its native regions, down it rushes, hurling the helpless animal into the abyss below, when proudly wheeling round by a few gyrations, as if to contemplate the effect of its sanguinary deed, it plunges below to gorge on the yet quivering flesh. Though the bird prefers the fruits of its rapacious prowess, it does not refuse carrion; and it is often seen slowly sweeping along the ground towards the expected banquet. The following anecdote will illustrate its boldness and voracity:—"Upon the highest top of the mountain Lamalmon," says a celebrated traveller in Abyssinia, "while my servants were refreshing themselves from that toilsome rugged ascent, and enjoying the pleasure of a most delightful climate, eating their dinner in the outer air, with several dishes of goat's flesh before them, this enemy, as he turned out to be to them, suddenly appeared; he did not stoop rapidly from a height, but came flying slowly along the ground, and sat down close to the meat, within the ring the men had made round it. A great shout, or rather a cry of distress, called me to the place. I saw the creature stand for a minute, as if to recollect himself; while the servants ran for their lances and

shields. I walked up as nearly to him as I had time to do. His attention was fully fixed upon the flesh. There were two large pieces, a leg and a shoulder, lying upon a wooden platter: into these he thrust both his claws, and carried them off; but

THE GOLDEN EAGLE.

I thought he still looked wistfully at the large piece which remained in the warm water. Away he went slowly along the ground, as he had come. The face of the cliff over which criminals are thrown, took him from our sight." In a few minutes, however, he returned, but he was shot by the traveller before he could procure a second freight.

The Golden Eagle was once an inhabitant of England; it still occupies the mountains of Scotland and Ireland, and occasionally makes its appearance in Wales. It is extensively spread over the European continent, and we have specimens from India. It has been generally thought to bear the same dominion over the birds, which has been attributed to the lion over the quadrupeds. The following points of resemblance are given from Buffon:—"Magnanimity is equally conspicuous in both; they despise the small animals, and disregard their insults. It is only after a series of provocations, after being teased with the noisy or harsh notes of the raven or magpie, that the eagle determines to punish their temerity or their insolence with death. Besides, both disdain the possession of that property which is not the fruit of their own industry; rejecting with contempt the prey which is not procured by their own exertions. Both are remarkable for their temperance. This species seldom devours the whole of his game, but, like the lion, leaves the fragments and offal to the other animals. Though famished for want of prey, he disdains to feed upon carrion. Like the lion also he is solitary, the inhabitant of a desert, over which he reigns supreme, excluding all the other birds from his silent domain. It is more uncommon, perhaps, to see two pairs of eagles in the same tract of mountain, than two families of lions in the same part of the forest. They separate from each other at such wide intervals, as to afford ample range for subsistence; and esteem the value and extent of their dominion to consist in the abundance of the prey with which it is replenished. The eyes of the eagle have the glare of those of the lion, and are nearly of the same colour; the claws are of the same shape; the organs of sound are equally powerful, and the cry equally terrible. Destined, both of them, for war and plunder, they are equally fierce, bold, and untractable."

The golden eagle feeds its young with the carcases of such small animals as lambs, hares, and geese. An Irish countryman, during a summer of famine, obtained a comfortable subsistence for his family out of an eagle's nest, by clipping the wings of the young birds, thus retarding their flight, and tying them so as to increase their cries. This, while it prolonged the attention of the parent birds to their young, also quickened their speed in supplying their wants. It was well for the Irishman that he was not detected by the parents, otherwise he might have met with the fate of a peasant who some years ago was killed by the eagles when running away with their young.

There are several instances on record of children having fallen victims to the ferocity of this bird. In 1737, in Norway, a child two years of age was running from the house to his parents, who were working in the fields, when an eagle pounced upon him, and, in spite of the agonized screams of his parents, was dragged away to the eyrie of the eagle. Ray informs us that in one of the Orkneys, a child 12 months old was seized and carried four miles to its nest; but the mother, inspired with courage by the occasion, followed the robber, clambered the mountain, and rescued the babe from the nest unhurt.

The courage, power, docility, and swiftness of the Peregrine Falcon rendered it a favourite in the days of falconry. The game at which it was flown were herons, cranes, wild ducks, etc., which it took by soaring above, and then making its swoop, that is, darting down impetuously upon them, bore them with

THE PEREGRINE FALCON.

irresistible violence to the earth. The appearance of this hawk excites universal panic among the waterfowl. A notorious characteristic of the species is, that at the report of a gun it will sometimes come and carry off, from within thirty yards of the sportsman, a bird which he may have just shot, with an assurance as surprising as unexpected. The following anecdote will prove the enduring attachment of which this creature is capable. The late Colonel Johnson, says a

recent writer, was ordered to Canada with his batallion, and being very fond of falconry, to which he had devoted much time and expense, he took with him two of his favourite peregrines, as his companions across the Atlantic. It was his constant habit during the voyage to allow them to fly every day, after 'feeding them up', that they might not be induced to rake off after a passing seagull, or wander out of sight of the vessel. Sometimes their rambles were very wide and protracted. At others they would ascend to such a height as to be almost lost to the view of the passengers, who soon found them an effectual means of relieving the tedium of a long sea voyage, and naturally took a lively interest in their welfare, but as they were in the habit of returning regularly to the ship, no uneasiness was felt during their occasional absence. At last, one evening, after a longer flight than usual, one of the falcons returned alone. The other—the prime favourite—was missing. Day after day passed away, and however much he may have continued to regret his loss, Captain Johnson had at length fully made up his mind that it was irretrievable, and that he should never see him again. Soon after the arrival of the regiment in America, on casting his eyes over a Halifax newspaper, he was struck by a paragraph announcing that the captain of an American schooner had at that moment in his possession a fine hawk, which had suddenly made its appearance on board his ship during his late passage from Liverpool. The idea at once occurred to Captain Johnson that this could be no other than his much-prized falcon; so, having obtained immediate leave of absence, he set out for Halifax, a journey of some days. On arrival, he lost no time in waiting on the commander of the schooner, announcing the object of his journey, and requesting that he might be allowed to see the bird; but the American had no idea of relinquishing his prize so easily, and stoutly refused to admit of the interview, "guessing" that it was very easy for an Englishman to lay claim to another man's property, but "calculating" that it was a great deal harder for him to get possession of it; and concluded by asserting in unqualified terms his entire disbelief in the whole story. Captain Johnson, whose object, however, was rather to recover his falcon than to pick a quarrel with the American, proposed that his claim to the ownership of the bird should be decided by an experiment, which several Americans who were present admitted to be perfectly reasonable, and in which their countryman was at last persuaded to acquiesce. It was this. Captain Johnson was to be admitted to an interview with the hawk—who, by the way, had as yet shown no partiality for any person since her arrival in the New World, but on the contrary had rather repelled all attempts at familiarity—and if at this meeting she should not only exhibit such unequivocal signs of attachment and recognition as should induce the majority of the bystanders to believe that he really was her original master, but especially if she should play with the buttons of his coat, then the American was at once to waive all claim to her. The trial was immediately made. The American went upstairs, and shortly returned with the falcon; but the door was hardly opened before she darted from his fist and perched at once on the shoulder of her beloved and long-lost protector, evincing by every means in her power her delight and affection, rubbing her head against his cheek and taking hold of the buttons of his coat and champing them playfully between her mandibles one after another. This was enough. The jury were unanimous. A verdict for the plaintiff was pronounced; even the obdurate heart of the sea-captain was melted, and the falcon was at once restored to her rightful owner.

THE CRIPPLED ORPHAN OF THE TYROL.

FOUNDED ON HISTORIC FACTS.

"God has his plan
For every man."
TYROLESE PROVERB.

THIS saying was once exemplified in Tyrol by the short and simple history of a poor crippled boy whose memory is still cherished there.

About fifty years ago a soldier's widow came with an only child to reside in a small hut near to one of those romantic villages which may be seen nestled amid the splendid mountains of that country, on the table-lands, or sierras, which afford space for the habitations of the mountaineers, who there shelter in winter the numerous flocks they drive in the summer to pasturage on the heights above. That village was the scene of busy industry; the people were independent and comfortable; they worked for themselves, and, except the emperor, to whom they were loyally devoted, they called no man lord. Still, at the time when this poor widow took up her abode there, agitation and fear had invaded this once happy and peaceful spot. It was the period when the reckless ambition of Napoleon deluged Europe with blood: this widow's husband had fallen fighting against him in the fearful battle of Austerlitz. Had the issue of that battle been different, and the army in which he served been victorious, it is probable that the bereaved wife would have felt her loss just as deeply, for what the world calls glory does not heal a bleeding heart, nor atone for the individual sufferings which war occasions. The widow was very poor, and as the partner of a soldier's life, she had been long separated from the friends of her youth: her affliction was then such a common one that it excited little interest; and the grief which she felt the deepest was just that which caused her to be of no consequence to the little community among which she came.

It has been already said she had one child—a maimed, disabled boy. The dangers to which the mother had been exposed, the hardships which had attended his infant life, produced this effect. Hans, the widow's son, was deformed; his figure was drawn considerably to one side, and he had very little power in using his arms. This was a sore trial to the poor woman; often would she look at her boy and sigh, for she thought in her age she should be left without aid or support; she could no longer work for him, and he could neither work for himself nor her. But when the murmuring thought found entrance to her heart, she hid it there, or rather she prayed to God to take it thence; she never let her son perceive it; she would have him only to feel that he was the solace of her life. And so he was; a true mother's love is ever most strongly shown to the child that needs her love, her care, her toils; and beyond this maternal feeling were her affections drawn to him.

Hans was, moreover, a kind boy, an affectionate, tender son; he was naturally of a thoughtful, reflective disposition; the peculiarities of his constitution tended to render him so. Separated by his bodily infirmity from the rude sports, the hardy pursuits, and daring adventures, in which the other young mountaineers engaged, that grave, reflective cast of countenance, which characterizes

the bold, independent, and gay, while deeply superstitious Tyrolese, was in his blended with actual melancholy thoughtfulness. His mother's tender care had not prevented him from gaining a knowledge of his helplessness; and his inability to assist her secretly preyed on his heart. When he saw her, for instance, carrying a burden he would run to relieve her, but, though active enough in running, his arms had no power; as a child his mother might deceive him into a belief that he was of use, but as a lad of fifteen years of age that kind concealment could no longer succeed, and at that age, being the time when this story commences, the state of his country was the means of fully impressing on his keenly sensitive mind the conviction of his own utter uselessness.

The arbitrary will of Napoleon Buonaparte, then in the zenith of his glory, had decreed that Tyrol should belong to Bavaria, and not to Austria, and a French and Bavarian army was already garrisoned in the country. We do not mean to discuss the propriety of the attachment which the Tyrolese showed to the latter; the chief reason of their attachment was however a right one; it was that their once independent land had passed to the dominion of Austria by right of legitimate succession; their last native princess, Margaret, having married a prince of the house of Hapsburg, who became emperor of Austria, and as such, added his wife's dominions to his own. Loyalty and religion had hitherto been closely combined in Tyrol, and the aversion its people testified to a union enforced by the French, sprang from the strength of those principles; they regarded them with horror, and a resolute zeal in the defence of their country and their religion, had begun to animate men, women, and even children throughout that mountain land.

At the juncture of which we now write, that valiant struggle was beginning which has afforded themes to many pens. Austria, unable to compete with Napoleon, withdrew the forces stationed in Tyrol, and left its people to defend themselves: their resistance to the powerful invader was one of the most celebrated and most successful that history records.

The Pass of Finstermünz still presents its terrible records to the eye of the traveller, who, amidst the wonderful sublimity of the spectacle, recalls to memory the awful scene enacted there in the time to which our story refers. This pass lies between the towns of Landeck and Meran; a splendid road has since been formed there by engineering skill, but even still, amid modern improvements, the passage between the rocks is so narrow in places as to appear a mere cleft formed by the violence of the torrent, which is heard roaring in the deep gulf below. These rocks rise towering over that narrow pass, clothed sometimes with trees, at others opening splendid views of snow-gemmed mountains, and green sparkling vales; while the ceaseless roar of the struggling water is the only sound that is heard. At times, as its passage opens, the nearly calmed and deep blue stream of the river Inn, crested with some of the snow-white foam which tells of its struggle, is seen gliding by; at others, rushing wildly; or again, as the gorge contracts, is dimly beheld, like a flake of snow, tossed in the dark gulf through which its suffocated murmurs alone announce its progress. From the little bridges which span this torrent, the views of the white glaciers and green mountain fastnesses, with the peasants' dwellings and the pretty green church spires, are charming; but at one spot the rocks on each side curl over so as almost to meet, and threaten to drop on those who pass under them; which, indeed, they would probably at some time do, if they were not propped by the stems of felled trees. At this wildest and most romantic spot, the bridge crosses the torrent at a height which, as you attempt to gaze down on the tossing snow-flakes beneath, conveys a sense of dizziness. Here an old, once fortified gateway, and the remains of an ancient tower, remind one of the times when fierce robber knights held indomitable forts in such fastnesses of nature. At this spot there is now a quiet inn, and a very little chapel. "Rest and give thanks," seems to be the idea presented by their united appearance.

This sublime mountain pass, so remarkable for natural beauty, has acquired a terrific celebrity in history from the epoch which just followed the incident that exemplified, as we have said, the Tyrolese proverb already quoted. We fervently hope that such celebrities are at an end; but were there ever a cause which could sanction the slaughter of our fellow creatures, it is the defence of our land, our homes, and our faith: it is when the unjust invader is resisted, and the motto of a people is that which the Tyrolese flag bore inscribed upon its folds—

"For God, our Emperor, and our Fatherland."

Here, as we stand in this sublime scene, and look up at the tree-covered heights, and bring our eye down over the shattered masses of rock that lie in the descent, we recall that terrible event, and involuntarily repeat the words:—

"Fit spot to make the invaders rue,
The many fallen before the few."

For it was here that, in the year 1809, upwards of 10,000 French and Bavarian troops were destroyed by an unseen foe. An immense avalanche of felled trees and broken rocks had been prepared, and was held suspended along the heights: as the advancing army marched in undisturbed order along this romantic pass, the foremost heard the startling words, "Ist es zeit?" "Is it time?" repeated above them. The officer halted, and sent back to ask directions. He was ordered to go forward. They went on. That word was repeated, and a louder voice in a tone of solemn command, announced *it was time!* and desired the avalanche to be let go. It was loosened; it thundered down; and of all the living host who a few minutes before had trod that pass, few, if any, escaped from it alive.

It was this determination to resist, and expel the foreign forces then stationed in their country, that had begun to animate the Tyrolese at the time when our poor Hans, having reached his fifteenth year, might be expected by the youth of the village to partake in their enthusiasm. That enthusiasm was general; a secret understanding prevailed among all the people of Tyrol; arrangements were made with noiseless resolution; intelligence of the advance of the Bavarian troops was to be conveyed from post to post, from village to village, by means

of signal fires, materials for which were laid ready on the rocky heights.

The village of which I have spoken lay directly in the line of route which that army would take; and with the animation and bustle it displayed, a great degree of fear and anxiety mingled. The old people felt the latter emotions—the dread of being surprised, of having their houses burned, their property destroyed, themselves killed, or driven shelterless to the mountains; such thoughts more or less disturbed every home, but did not shake the courage and resolution of the people. Even the children acted in their plays what they heard their fathers and older brothers talk of, or saw them practise; and thus from the aged and timid—the latter indeed were few—down to the child who thoughtlessly mimicked in his sports the hostile events that were approaching, only one theme was heard in the village, or in the whole country; only one spirit seemed to be felt, and scarcely any persons were to be found who were not preparing, in some way, to take a part in the coming struggle. I say scarcely any—for it will have been already seen that two, at least, of that small community knew their part was to sit still and see how the matter would go. These were the soldier's widow and her deformed boy. The widow had had enough of war; she had known its realities, while many of her young neighbours were deceived by its visionary renown. She had felt its horrors, while they contemplated in imagination its glories. She looked now at her disabled son, and did not sigh, as she had often done, in thinking of his helplessness.

"Ah, Hans," said she abruptly, as she gazed upon him one evening, "it is well for us now that thou canst be of little use; they would take thee from me to serve thy country, my boy, wert thou fit to be a soldier." The widow did not know how very tender was the chord she touched in her son's mind.

Hans had long been secretly suffering much pain from the rude discovery of the very fact she thus alluded to. That secret pain had not been exposed even to a tender mother's eye. Now the wound was touched. Hans bowed down his head; his mother had not observed that of late he had been more peculiarly pale, silent, and averse to go out. Now the large tear that suddenly rolled down the pale cheek and dropped upon his knee, told her that the feelings of the youth had been compressed within his own bosom. That tear seemed to fall upon the mother's heart: she felt its cause.

"My son, what aileth thee?"

"Mother! I am useless!" cried the youth, with a burst of now irrepressible grief.

"Useless!" the widow repeated; but the tone in which she uttered the word might seem to denote some little surprise at the discovery her son had only then made.

"Yes, useless," Hans continued: "look round our village—all are busy, all preparing, all ready to strive for homes and fatherland—I am useless!"

"My boy, my kind, dear son, thou art not useless to me."

"Even to thee—I cannot work for thee; cannot in thy age support thee. Ah! I know all now. Why was I made, mother?"

"Hush, Hans," said his mother; "these repining thoughts become you not. You will live to find the truth of our old proverb:—

"God has his plan
For every man."

Little did Hans think that ere a few weeks had passed this truth was to be verified in a most remarkable manner. But the sequel must be left for another paper.

A LOVELY PICTURE.

Many of the prejudices in the present day against vital Christianity are traceable to distorted apprehensions of its real excellence. Who can read the following exquisite portrait of its graces and characteristics without being charmed with the original?

Whatever else there be, if there be not love, it profits nothing, it proves nothing. Love to God and our neighbour is the essence of piety. It is the body, the basis, the staple element; and if the great commandment, and the next greatest be absent, whatever else there be, there is not Christianity.....

Joy. The essence of love is attachment. Joy is the happiness of love. It is love exulting. It is love aware of its own felicity, and rioting in riches which it has no fear of exhausting. It is love taking a look of its treasure, and surrendering itself to bliss without foreboding. "God's promises appear so strong, so solid, so substantial, more so than the rocks and everlasting hills; and his perfections, what shall I say of them? When I think of one, I wish to dwell upon it for ever; but another, and another equally glorious, claims a share of admiration; and when I begin to praise, I wish never to cease, but to find it the commencement of that song which will never end. Very often have I felt as if I could that moment throw off the body, without first going to bid them farewell that are at home in my house. Let who will be rich, or admired, or prosperous, it is enough for me that there is such a God as Jehovah, such a Saviour as Jesus, and that they are infinitely and unchangeably glorious and happy!" And in a similar frame another felt—"Were the universe destroyed, and I the only being in it besides God, he is fully adequate to my complete happiness; and had I been in an African wood, surrounded by venemous serpents, and devouring beasts, and savage men, in such a frame I should be the subject of perfect peace and exalted joy."

Peace. If joy be love exulting, peace is love reposing. It is love on the green pastures, it is love beside the still waters. It is that great calm which comes over the conscience, when it sees the atonement sufficient, and the Saviour willing. It is unclouded azure in a lake of glass; it is the soul, which Christ has pacified, spread out in serenity and simple faith, and the Lord God, merciful and gracious, smiling over it.

Long-suffering. This is love enduring. If the trial come direct from God, it is enough. It is correction. It is his heavenly Father's hand, and with Luther, the disciple cries—"Strike, Lord,

strike. But, oh! do not forsake me." If the trial come from Christian brethren, till it be seven-fold seventy times repeated, love to Jesus demands forgiveness. If it come from worldly men, it is the occasion for that magnanimity which recompenses evil with good. And in every case, it is an opportunity for following a Saviour, whom sufferings made perfect. That Saviour never loved the Father more intensely, than when his Father's face was hid, and when the bitter cup proclaimed his justice terrible and his truth severe. One apostle denied him, and all the disciples forsook him; but Jesus prayed for Peter, whilst Peter was cursing, and his love followed the rest, even when they were running away. Jerusalem killed him; but in foresight of the guilty deed, it was over Jerusalem that Jesus wept, and when the deed was done, in publishing pardon and the peace of God, it was at Jerusalem that evangelists were directed to begin.

Gentleness, or affectionateness. This is love in society. It is love holding intercourse with those around it. It is that cordiality of aspect, and that soul of speech, which assure us that kind and earnest hearts may still be met with here below. It is that quiet influence which, like the scented flame of an alabaster lamp, fills many a home with light, and warmth, and fragrance, all together. It is the carpet, soft and deep, which, whilst it diffuses a look of ample comfort, deadens many a creaking sound. It is the curtain which, from many a beloved form, wards off at once the summer's glow and the winter's wind. It is the pillow on which sickness lays its head and forgets half its misery, and to which death comes in a balmier dream. It is considerateness. It is tenderness of feeling. It is warmth of affection. It is promptitude of sympathy. It is love in all its depth and all its delicacy. It is every melting thing included in that matchless grace, "the GENTLENESS of Christ."

Goodness or beneficence. Love in action, love with its hand at the plough, love with the burden on its back. It is love carrying medicine to the sick, and food to the famished. It is love reading the bible to the blind, and explaining the gospel to the felon in his cell. It is love at the Sunday class, or in the ragged-school. It is love at the hovel-door, or sailing far away in the missionary ship. But whatever task it undertakes, it is still the same—love following His footsteps, "who went about continually DOING GOOD."

Faith. Whether it means trust in God, or fidelity to principle and duty, faith is love in the battle-field. It is constancy following hard after God, when the world drags downward, and the flesh cries, "halt." It is zeal holding fast sound words when fervour is costly and sound words are obnoxious. It is firmness marching through fire and through water to the post where duty calls and the captain waits. It is Elijah before Ahab. It is Stephen before the sanhedrim. It is Luther at Worms. It is the martyr in the flames. Oh, no! It is Jesus in the desert. It is Jesus in Gethsemane. It is Jesus on the cross. And it is whosoever, pursuing the path or finishing the work which God has given him, like the great forerunner, does not fear to die.

Meekness is love at school—love at the Saviour's school. It is Christian lowlihood. It is the disciple learning to know himself: learning to fear, and distrust, and abhor himself. It is the disciple practising the sweet and self-emptying lesson of putting on the Lord Jesus, and finding all his righteousness in that righteous other. It is the disciple learning the defects of his own character, and taking hints from hostile as well as friendly monitors. It is the disciple praying and watching for the improvement of his talents, the mellowing of his temper, and the amelioration of his character. It is the loving Christian at the Saviour's feet, learning of him who is meek and lowly, and finding rest for his own soul.

Temperance. Love taking exercise, love enduring hardness, love seeking to become healthful and athletic, love striving for the mastery in all things, and bringing the body under. It is superiority to sensual delights, and it is the power of applying resolutely to the irksome duties for the Master's sake. It is self-denial and self-control. Fearful lest it should subside to gross carnality, or waste away into shadowy and hectic sentiment, temperance is love alert and timeously astir; sometimes rising before day for prayer, sometimes spending that day on tasks which laziness or daintiness declines. It is love with girt loins, and dusty feet, and blistered hands. It is love with the empty scrip but the glowing cheek; love subsisting on pulse and water, but grown so healthful and so hardy, that it "beareth all things, believeth all things, hopeth all things, endureth all things." *

ROADS AND RAILWAYS.

IN ancient times the difficulties in the way of any considerable commerce by land were all but insuperable. The land route of most importance before the discovery of the way to India by the Cape of Good Hope, was that which led from the ports at the head of the Persian Gulf to those on the coast of the Mediterranean. This distance was traversed by camels, large caravans generally going together, and on the backs of these singularly gifted creatures, appropriately called the ships of the desert, the productions of the fairy East were introduced to the nations of Europe; the Venetians and Genoese having succeeded the ancient Syrians in the office of distributing them among the more important markets in Italy, the Netherlands, and Britain. The Romans had early given attention to road-making. With that practical sagacity which distinguished all their operations, they saw that easy communication from one part of their empire to another must be the condition of permanent conquest. Hence they everywhere employed their legions, when free from the more pressing work of war, in constructing those famous highways of which many remnants exist in our own days. We can form an idea of the impossibilities which must have surrounded the carrying out of any extended scheme of land communication in early times, from those which existed in this

* From a charming little production, "The Vine," which bears internal evidence of being from the graceful pen of the Rev. James Hamilton, D.D.

country down to a very recent period. Within the memory of many persons still living, the distance between Edinburgh and London constituted a good week's journey, and a person setting out from Manchester in the morning on his way to Liverpool by the trusty "Diligence," would have to stop at Irlam to breakfast, to dine at Warrington, to take tea at Prescot, and would reach his destination in the evening. In rambling among the elevated parts of Derbyshire and Yorkshire, we sometimes light upon a rough pathway half overgrown with bushes, and resembling a narrow gulley between two hills. In the winter it is a foaming water-course, and in the summer the tourist avails himself of its dry channel in order to assist his ascent. This, our guide may inform us, was, in days of yore, the highway between two neighbouring towns; along this narrow and rugged passage the bell-horse jogged beneath its weary load; its shrill tones re-echoing, in unison with the driver's whistle, among the adjacent valleys.

It seems not altogether improbable that a complete change will take place in our present facilities of commercial transit through the intervention of railways. A vast change has already been accomplished in reference to inland traffic, and it is likely that a similar one will in time be realized in our mode of communication with the most distant nations. The growth of the railway system during the last twenty years is a fact almost unparalleled in point of interest by anything of the same kind which ever occurred in the world's history, and we will adduce a few facts in order to place it more vividly before the eyes of the reader. We are in danger of losing sight of the most remarkable phenomena of our own time, for the want of an observant eye, and of surrendering to posterity the exclusive enjoyment of the admiration which they cannot fail to awaken in every contemplative mind.

One of the first English railways was that between Manchester and Liverpool. It was effected in the face of all but insuperable difficulties, including the crossing of a bog twelve miles in width, and the cutting through several miles of solid rock. Little more than twenty years have elapsed, and instead of some thirty or forty miles of railway, the total length of lines in operation amounted in 1850 to as much as 6300 miles, and of this more than one-half has been laid down within the last five years. When the Liverpool and Manchester railway was completed, it was regarded as an open question whether the trains should be moved by horse power or by engines, and then whether those engines should be stationary or properly *locomotive*. The first engines employed did not weigh, including the tender, more than 7½ tons, and the average speed was not more than 17 miles an hour. Now there are no less than 1865 locomotives on British and Irish railways, whose average weight is as much as 40 tons, while many are 20 or 30 tons heavier. The average rate of running is now 30 miles an hour, and the fast trains on the Grand Junction move at the rate of 50 miles an hour. In 1831, the number of trains entering the station at Liverpool was 26, it is now more than 100. Much more material is now expended in the construction of railways than formerly. We have just mentioned the increased weight of locomotives; a proportionate increase has taken place in every department of railway manufacture. The iron rails used to weigh no more than 30lbs. per yard, they now weigh 80 or 90lbs., and the passenger trains, whose weight, including engine and tender, averaged 18 tons, now weigh, without engine and tender, as much as 75 tons. The aggregate distance travelled during the past year was nearly 40,000,000 miles, being about 110,333 miles a day, the amount of money taken for goods and passengers during the same period was probably more than £14,000,000, involving a saving of £8,000,000 annually upon the old coach system, even supposing its facilities could have been expanded to the transit, during the year, of between two and three millions of passengers, and an inconceivable weight of luggage.

Our conception of the vastness of the change introduced by our railway system, is increased by considering the prodigious quantity of materials which have been consumed in the construction and management of existing lines, and the peculiar source whence they are derived. The metal required to construct 1865 engines would weigh 75,000 tons, and the 26,000 miles of single rails would require 1,500,000 tons more. This is exclusive of the stone and iron necessary in building the extensive stations and bridges which bestride the country. All this iron has to be dug from the bowels of the earth, smelted and forged, before it comes into the hand of the railway contractor. What immense labour does this fact unveil to us! Before such feats of modern industry, the drudgery of all the legions of Rome, expended on all the roads they ever constructed at the call of ambition, dwindles into insignificance. Yet these are only one-half of that mighty aggregate of effort which has crossed the marshes, pierced mountains, and bridged seas. Even this is not all. An army of miners must be employed underground every day, in order to supply motive power to the trains which rattle along overhead. The heat requisite to generate the steam requires for its production 506,000 tons of coke, or nearly three quarters of a million tons of coal; a quantity which, if it were piled up in a pillar having a base of one yard square, would pierce the sky to a height of 757 miles. The capital employed in sustaining this vast amount of labour is enormous. The construction of the lines now in operation has cost more than 250,000,000*l.*, or nearly three times the amount of the annual revenue of Great Britain; and, assuming that the working expenses sustain a proportion of 50 per cent. to the receipts, the annual sum paid by the various railway companies in the purchase of materials and labour, and disposed in other channels, amounts to more than seven millions sterling.

A moment's reflection on facts, of which these are a sample, must assure us that the mission of railways is only just begun, and that a new era has dawned upon the intercourse of the world. Any very much greater extension than the system has already received within this country, we have no reason to anticipate. A line has already been laid down between all places of sufficient importance to offer the slightest chance of remuneration; and henceforth the progress of railways will be gradual, and in keeping with the growth of new towns.

Moreover, the existence of a railway, as formerly of a navigable river, is sure to attract capital to its neighbourhood. A manufacturer, who might otherwise have settled down in a small town, and helped to increase its importance, will now place himself near some town already possessed of railway accommodation; and thus, when existing wants are fully supplied—as is nearly the case already—there will be little need of its extension.

But it is different with railways as a means of international communication. Here their work is hardly begun. Absurd jealousies are only just giving way. The old Spartan feeling, which forbade the presence of strangers, and would have been frightened beyond all propriety by the phenomenon of a modern excursion train, is only beginning to relent into those sentiments of confidence and candour which should mark the intercourse of man with man. In some continental states the scream of the engine has not yet been heard. The Vatican, after having long resisted the railroad, has at last succumbed. The establishment of quicker means of transit, simple as the change appears, will do more towards abolishing the vexatious fiscal restrictions which have separated the small states of Europe from each other, and uniting the people into more natural aggregates, than all the debates and plans of politicians.

But a still greater revolution—one which may be fraught for us as a maritime people with very important consequences—is the anticipated transfer of the route to India from sea to land. It has been seriously affirmed, that the construction of a road which should take us to Calcutta in seven days from our bookage in London, is altogether practicable. Already a line from Ostend to Orsova, in the Turkish dominions, is resolved upon. From Orsova it is but 345 miles to Constantinople. From Constantinople the route would lie by the Orontes, through the valley of the Euphrates, to Bussorah, at the head of the Persian Gulf; this portion of the journey being about 1355 miles. From Bussorah the road would wind round the coast of Persia and Beloochistan, to Hyderabad on the Indus, whence "branch lines" might carry the traveller to Lahore, Bombay, or Calcutta. The entire distance from England, by this exclusively overland route, would be about 5600 miles, of which 2600 miles are to be traversed by railway forthwith. Of the possibility of such a plan, more practised oracles must speak; meanwhile, our countryman, Mr. Stephenson, has proceeded to Egypt to superintend the construction of a railway over the Isthmus of Suez, which, however important in itself, our admiration, glowing with what we have already seen and heard, will only accept as the instalment of a more magnificent promise.

THE EXPEDITION OF TORRIJOS.

The descent of Lopez on Cuba, and the summary destruction which it entailed on him and his followers, will still be fresh in the minds of our readers. A curious historical parallel exists in the expedition of General Torrijos, a Spanish refugee well known in England, against Spain. It took place in the year 1831; and is thus related by Mr. Carlyle, in one of his recent publications:—

"It was on the last night of November that they all set forth, from Gibraltar; Torrijos with 55 companions, and in two small vessels, committed themselves to their nigh desperate fortune. No sentry or official person had noticed them; it was from the Spanish consul, next morning, that the British governor first heard they were gone. The British governor knew nothing of them; but apparently the Spanish officials were much better informed. Spanish guardships, instantly awake, gave chase to the two small vessels, which were making all sail towards Malaga; and on shore all manner of troops and detached parties were in motion, to render a retreat by Gibraltar impossible.

"Crowd all sail for Malaga, then; there perhaps a regiment will join us—or, if not, we are but lost! Fancy need not paint a more tragic situation than that of Torrijos, the unfortunate, gallant man, in the grey of the morning, first of December, 1831, —his last free morning. Noble game is afoot at last, and all the hunters have him in their toils. The guardships gain upon Torrijos; he cannot even reach Malaga; has to run ashore at a place called Fuengirola, not far from that city; the guardships seizing his vessels so soon as he is disembarked. The country is all up, troops scouring the coast everywhere; no possibility of getting into Malaga with a party of fifty-five. He takes possession of a farmstead (Ingles the place is called); barricades himself there, but is speedily beleaguered with forces hopelessly superior. He demands to treat—is refused all treaty—is granted six hours to consider, shall then either surrender at discretion, or be forced to do it. Of course he does it, having no alternative, and enters Malaga a prisoner—all his followers prisoners. Here had the Torrijos enterprize, and all that was embarked upon it, finally arrived. Express is sent to Madrid; express instantly returned: 'Military execution on the instant; give them shriving if they want it; that done, fusillade them all.' So poor Torrijos and his followers, the whole fifty-six of them, Robert Boyd included, meet swift death in Malaga. In such manner rushes down the curtain on them and their affair; they vanish thus on a sudden, rapt away as in black clouds of fate. Poor Boyd pleaded his British citizenship to no purpose; it availed only his dead body; this was delivered to the British consul for interment, and only this. Poor Madam Torrijos, hearing at Paris, where she now was, of her husband's capture, hurries towards Madrid to solicit mercy; whither, also, messengers from Lafayette and the French government were hurrying on the like errand: at Bayonne, news met the poor lady that it was already all over, that she was now a widow, and her husband hidden from her for ever."

On Reading and Thinking.—Always have a book within your reach, which you may catch up at your odd minutes. Resolve to edge in a little reading every day, if it is but a single sentence. If you can give fifteen minutes a day, it will be felt at the end of the year. Thoughts take up no room. When they are right they afford a portable pleasure, which one may travel or labour with without any trouble or incumbrance.

A Fatal Rock.—"We must do as others do," is a most foolish and pernicious maxim.

The Poetry of Home.

HOME.

FROM "BALLADS AND POEMS."

I foraged all over this joy-dotted earth,
To pick its best nosegay of innocent mirth
Tied up with the bands of its wisdom and worth,—
And lo! its chief treasure,
Its innermost pleasure,
Was always at Home!

I went to the Palace, and there my fair Queen
On the arm of her husband did lovingly lean,
And all the dear babes in their beauty were seen,
In spite of the splendour,
So happy and tender,
For they were at Home!

I turn'd to the cottage, and there my poor hind
Lay sick of a fever, all meekly resign'd,
For oh! the good wife was so cheerful and kind,
In spite of all matters,
An angel in tatters,
And she was at Home!

I ask'd a glad mother, just come from the post
With a letter she kiss'd from a far-away coast,
What heart-thrilling news had rejoiced her the most—
And—gladness for mourning!
Her boy was returning
To love her—at Home!

I spoke to the soldiers and sailors at sea,
Where best in the world would they all of them be?
And hark! how they earnestly shouted to me,
With iron hearts throbbing,
And choking and sobbing,
—O land us at Home!

I came to the desk where old Commerce grew gray,
And ask'd him what help'd him this many a day
In his old smoky room with his ledger to stay?
And it all was the beauty,
The comfort and duty,
That cheer'd him at Home!

I ran to the court, where the sages of law,
Were wrangling and jangling at quibble and flaw:—
O wondrous to me was the strife that I saw!
But all that fierce riot
Was calm'd by the quiet
That bless'd them at Home!

I call'd on the school-boy, poor love-stricken lad,
Who yearn'd in his loneliness, silent and sad,
For the days when again he should laugh and be glad
With his father and mother,
And sister and brother,
All happy at Home!

I tapp'd at the door of the year-stricken Eld,
Where age, as I thought, had old memories quell'd;
But still all his garrulous fancies outwell'd,
Strange old-fashion'd stories
Of pleasures and glories
That once were at Home!

I whisper'd the prodigal, wanton and wild,
—How changed from the heart that you had when a child,
So teachable, noble, and modest, and mild!—
Though Sin had undone him,
Thank GOD that I won him
By looking at Home!

And then when he wept and he vowed better life,
I hasten'd to snatch him from peril and strife,
By finding him wisely a tender young Wife,
Whose love should allure him,
And gently secure him
A convert at Home!

So he that had raced after pleasure so fast,
And still as he ran had its goal overpast,
Found happiness, honour, and blessing at last
In all the kind dealings,
Affections and feelings,
That ripen at Home! TUPPER.

THE LIGHT OF HOME.

My boy, thou wilt dream the world is fair,
And thy spirit will sigh to roam,
And thou must go;—but never, when there,
Forget the light of home.

Though pleasure may smile with a ray more bright,
It dazzles to lead astray;
Like the meteor's flash it will deepen the night,
When thou treadest the lonely way.

But the hearth of home has a constant flame,
And pure as the vestal fire;
'T will burn, 't will burn, for ever the same,
For nature feeds the pyre.

The sea of ambition is tempest-toss'd,
And thy hopes may vanish like foam,
But when sails are shiver'd and rudder lost,
Then look to the light of home.

And there, like a star through the midnight cloud,
Thou shalt see the beacon bright,
For never, till shining on thy shroud,
Can be quench'd its holy light.

The sun of fame, 't will gild the name,
But the heart ne'er feels its ray;
And fashion's smiles that rich ones claim,
Are like beams of a wintry day.

And how cold and dim those beams would be,
Should life's wretched wand'rer come:
But my boy, when the world is dark to thee,
Then turn to the light of home. S. J. HALE.

THE VOICE OF HOME TO THE PRODIGAL.

O! when wilt thou return
To thy spirit's early loves?
To the freshness of the morn,
To the stillness of the groves?

The summer-birds are calling
Thy household porch around,
And the merry waters falling
With sweet laughter in their sound.

And a thousand bright-vein'd flowers,
From their banks of moss and fern,
Breathe of the sunny hours—
But when wilt thou return?

Oh! thou hast wander'd long
From thy home without a guide;
And thy native woodland song
In thine alter'd heart hath died.

Thou hast flung the wealth away,
And the glory of thy spring;
And to thee the leaves' light play
Is a long-forgotten thing.

But when wilt thou return?
Along thine own pure air,
There are young sweet voices borne—
Oh! should not thine be there?

Still at thy father's board
There is kept a place for thee;
And, by thy smile restored,
Joy round the hearth shall be.

Still hath thy mother's eye,
Thy coming step to greet,
A look of days gone by,
Tender and gravely sweet.

Still, when the prayer is said,
For thee kind bosoms yearn,
For thee fond tears are shed—
Oh! when wilt thou return? MRS. HEMANS.